

REMARKS

Applicant has reviewed and considered the Office Action dated July 14, 2003, and the references cited therewith.

No claims are amended, no claims are canceled and no claims are added. Claims 1-61 are pending of which 27-61 were previously withdrawn in this application.

Applicant has submitted formal drawings, entry of which is respectfully requested.

§103 Rejection of the Claims

Claims 1-3, 6-7, 9-19, 21, 22 and 24 were rejected under 35 USC § 103(a) as being unpatentable over Lang et al. (Appl. Phys. A (1998) 66: S61-64) in view of Baselt et al. (J. Vac. Sci. Technol. (1996) 14: 789-793).

Applicant respectfully traverses the rejection and submit that *prima facie* obviousness has not been established. Applicant is unable to find, in Baselt, Lang or the combination of Baselt and Lang, a teaching or suggestion of each recited element of claim 1. In particular, Applicant is unable to find, in the proposed combination of Lang and Baselt, a teaching or suggestion "wherein said structure has an immobilized binding partner that binds to said analyte on said second portion of the structure, wherein said structure resonates under ambient conditions at a frequency based on the mass of said analyte on said second portion," as recited in claim 1. The Office Action acknowledges that "Lang et al. do not explicitly teach (1) immobilization of binding partners that bind to the various analytes on the portion on the device, such as pathogen, bacteria, virus, ligand, protein or DNA; . . . " Furthermore, Applicant submits that the recited element is not explicitly met by Baselt. Baselt refers to measuring the bending of the cantilever based on a magnetic field pull on superparamagnetic beads. Baselt does not appear to refer to the "mass of the analyte," as recited in the claim, but rather to the "magnetic field pull on the beads." Thus, it appears that the proposed combination of Lang and Baselt does not teach or suggest all elements recited in the claim.

In addition, Applicant notes that the proposed combination is improper and thus cannot serve as grounds for *prima facie* obviousness. For example, Baselt recites:

Unlike the optical detection methods commonly used in AFM, piezoresistive cantilevers do not require external sensing hardware. This is an important advantage for FABS, since such hardware usually requires manual alignment to the cantilever and tends to be large and easily damaged. (Page 2-3).

Applicant thus submits that Baselt teaches away from using an optical measuring system. Lang appears to refer to an optical measuring system. Thus, Applicant submits that one of skill in the art would not be motivated to combine Baselt with Lang in the manner proposed.

Baselt measures the bending of the cantilever and does not appear to measure a change in resonant frequency. Indeed, Baselt states that "since the cantilever is in a solution, it seems unlikely that detecting at cantilever resonance (60 kHz) would significantly improve the signal." Rather than measuring changes in resonant frequency, Baselt appears to rely on total deflection. Thus, Baselt and Lang are not properly combinable.

Therefore, it appears that the obviousness rejection on the basis of the proposed combination of Lang and Baselt is improper.

As to claims 2-3, 6-7, 9-19, 21, 22 and 24, Applicant submits that each recites additional elements beyond that of independent claim 1. For at least the reasons presented earlier, it is believed that each of dependent claims 2-3, 6-7, 9-19, 21, 22 and 24 are in condition for allowance.

Reconsideration and allowance of claims 1-3, 6-7, 9-19, 21, 22 and 24 are respectfully requested.

Claim 20 was rejected under 35 USC § 103(a) as being unpatentable over Lang et al. in view of Baselt et al. as applied in claims 1-3, 6-7, 9-19, 21, 22, 24 and, further in view of Lee et al. (USP 5,807,758).

Applicant respectfully traverses the rejection and submits that *prima facie* obviousness has not been established. In particular, the proposed combination of Lang and Baselt is improper for at least the reasons presented earlier. Furthermore, the Office Action has not identified a proper motivation for combining Lee with Lang and Baselt. The Office Action refers to Lee which purports to detect metallic ions using a chelator as a binding agent. However, Applicant, without acquiescing to the purported teachings of Lee, notes that such a teaching, if actually present in Lee, provides no motivation to combine with other documents in general, or Lang and Baselt in particular. In other words, if Lee already provides detection of metallic ions, then there is no need to combine Lee with Lang and Baselt. Thus, it appears that the proposed combination is improper.

Reconsideration and allowance of claim 20 is respectfully requested.

Claims 4, 5, 8 and 23 were rejected under 35 USC § 103(a) as being unpatentable over Lange et al. in view of Baselt et al., as applied to claims 1 and 22, and further in view of Quate et al. (USP 6,203,983).

Applicant respectfully traverses the rejection and submits that *prima facie* obviousness has not been established. In particular, the proposed combination of Lang and Baselt is improper for at least the reasons presented earlier. Furthermore, the Office Action has not identified a proper motivation for combining Quate with Lang and Baselt. Rather, the Office Action asserts that "the additional features are considered conventional, commonly practiced, or involving only ordinary skill in the art." Applicant respectfully submits that such grounds for pursuing the proposed combination is contrary to the precept of M.P.E.P. § 2143.01 which provides that the fact that references can be combined or modified is not sufficient to establish *prima facie* obviousness and the fact that the claimed invention is within the capabilities of one of ordinary skill in the art is not sufficient by itself to establish *prima facie* obviousness. Here, the record does not clearly identify the desirability of the claimed invention. Thus, Applicant submits that the proposed combination of Lang, Baselt and Quate is improper.

Reconsideration and allowance of claims 4, 5, 8 and 23 are respectfully requested.

Claims 25-26 were rejected under 35 USC § 103(a) as being unpatentable over Lange et al. in view of Baselt et al., as applied in claim 1, and further in view of Carr et al. (J. Vac. Sci. Technol. B (1997) 15: 2760-2763).

Applicant respectfully traverses the rejection and submits that *prima facie* obviousness has not been established. In particular, the proposed combination of Lang and Baselt is improper for at least the reasons presented earlier. Furthermore, the Office Action has not identified a proper motivation for combining Carr with Lang and Baselt. The Office Action refers to Carr and detecting small forces. However, Applicant notes that such a teaching by Carr provides no motivation to combine with other documents in general, or Lang and Baselt in particular. In other words, if Carr already provides detection of analyte, then there is no need to combine Carr with Lang and Baselt. Indeed, the Office Action provides no motivation as to why Carr is to be combined with Baselt. Thus, it appears that the proposed combination is improper.

Reconsideration and allowance of claims 25 and 26 are respectfully requested.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 373-6911 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

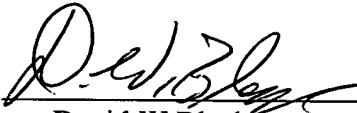
Respectfully submitted,

HAROLD G. CRAIGHEAD ET AL.

By their Representatives,

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
P.O. Box 2938
Minneapolis, MN 55402
(612) 373-6911


Date October 14, 2003

By 
David W Black
Reg. No. 42,331

CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, Washington, D.C. 20231, on this 14 day of October, 2003.



Name



Signature